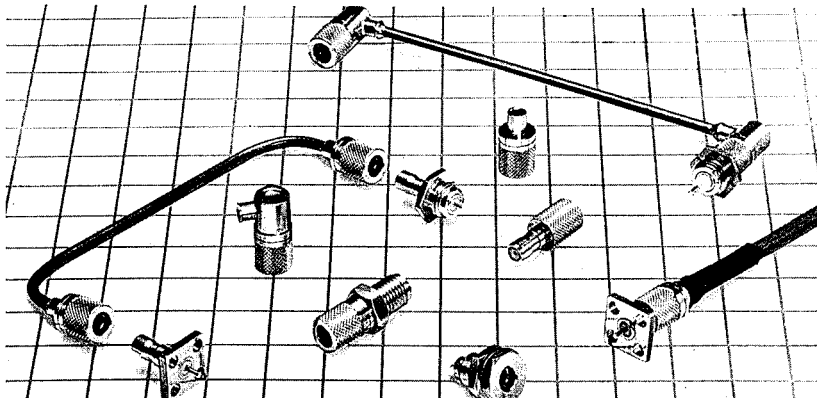


POD SERIES RF CO-AXIAL CONNECTORS

Overview

The POD (Push-on Lock Connectors Type D) series consists of highly compatible, ultrasmall-size push-on lock-type coaxial connectors for 50 Ω system ultrathin coaxial cables.

The POD series is suitable for high-density in-unit wiring for the microwave band and high-speed pulse transmission. They make it possible to speed up adjustment and maintenance of the devices and also increase the overall cost-effectiveness.



Uses

The POD series is suitable for in-unit wiring in electronic measuring instruments, wired and wireless communications equipment, broadcasting equipment, etc. and for connections between units.

Characteristic features

1. **Good performance characteristics for ultrasmall-size units**
 - (1) As connectors for the microwave band, the size has been reduced by about 70% in comparison with the familiar HRM connectors, and also the usable frequency band is wide (up to 8GHz).
 - (2) The coupling parts have spring mechanism parts which are able to withstand twisting well. Therefore, their stability and reliability are as high as those of connectors of the screw-in type.
2. **Mounting and removal are easy.**
 - (1) Time is not required in mounting and removal, which can be performed almost instantaneously. Secure connections can be confirmed by the lock sounds.
 - (2) Since mounting and removal can be performed with the fingers, there is no need to provide tools such as spanners or torque wrenches.
3. **Connectors match ultrathin coaxial cables.**
 - (1) They fit in with the recent trend towards more-compact line parts and are most suitable as end connectors for .085-inch semi-rigid cables, which are widespread use.
 - (2) They match ultrathin flexible cables such as 1.5D-2V or 2.5D-2V.

Standard cables

Table 1 lists the standard cables of the POD series.

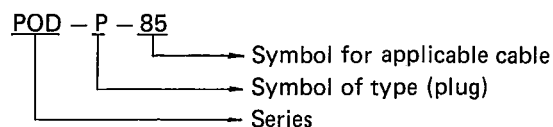
Table 1

Classification	Cable name	Cable symbol
Flexible cables	1.5D-2V	1.5DV
	1.5D-2W	1.5DW
	2.5D-2V	2.5DV
Semi-rigid cables	.085-inch semi-rigid cables	85

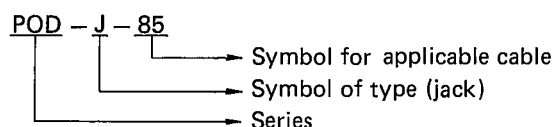
Configuration of Part Numbers

The part numbers of the POD series have the following configuration:

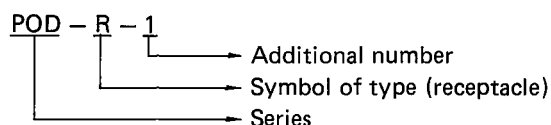
Example 1. Plugs



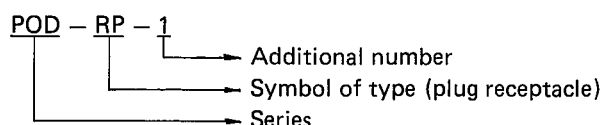
Example 2. Jacks



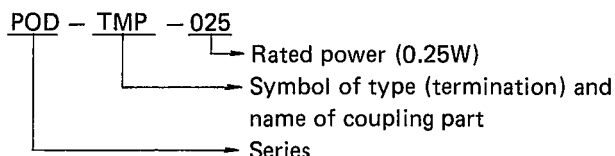
Example 3. Receptacles



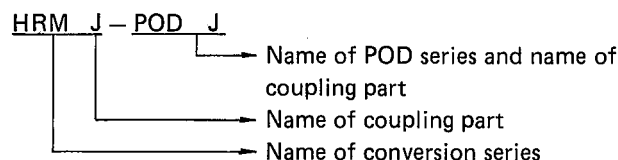
Example 4. Plug receptacles



Example 5. Terminations



Example 6. Conversion adapters



(1) Name of series

POD is used as the name of the series.

(2) Symbol of type

The types of the connectors are as shown in Table 2.

Table 2

Mode of connector	Type of connector	Symbol of type
Plug	Straight plug	P
	L-type plug	LP
Jack	Straight jack	J
	L-type jack	LJ
Receptacle	Straight receptacle	R
Plug receptacle	Straight plug receptacle	RP
In-series adapter	Straight adapter	A
Termination	Plug termination	TMP
	Jack termination	TMJ

Materials, finish

Part name	Materials		Finish
	Materials	Applicable standards	Plating
Shell	Brass	JIS H 3250	Nickel plating
Outer cylinder	Brass	JIS H 3250	Nickel plating
Female center contact	Beryllium copper	JIS H 3270	Gold plating
Male center contact	Brass	JIS H 3250	Gold plating
Solderless sleeve (ferrule)	Annealed copper	JIS H 3250	Nickel plating
Insulation	Tetrafluoride resin		
Cord covering (jacket)	Cross-linked polyolefin		

(3) Symbols of applicable cables

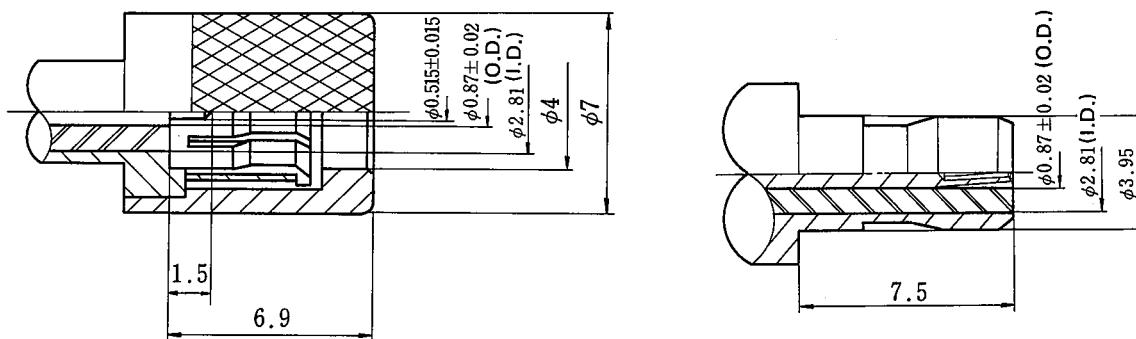
Refer to the standard cables in Table 1.

(4) Additional numbers

Additional numbers are assigned in sequence as there are changes in types, such as the parts where the wiring is connected.

POD SERIES RF CO-AXIAL CONNECTORS

Coupling part



Performance properties

Items		Performance properties			
Structure, Dimensions	Structure	Refer to individual drawings			
	Dimensions	Dimensions of coupling parts: see P.149. External dimensions: see P.150~153.			
Electrical Properties	Insulation resistance	1000MΩ or more measured at 500V DC			
	Withstand voltage	Test voltage 500V AC (rms) (at normal pressure)			
	Contact resistance	5mΩ or less at both center contact and outer contact			
	Characteristic impedance	50 Ω			
	Frequency range	DC ~ 8GHz			
	Voltage standing wave ratio (V.S.W.R.)	Connectors for .085-inch semi-rigid cables	Straight type	DC ~ 8GHz	1.2 or less
			L type	DC ~ 8GHz	1.25 or less
Connectors for flexible cables		Straight type	DC ~ 4GHz	1.2 or less	
		L type	DC ~ 2GHz	1.2 or less	
Receptacles		Straight type	DC ~ 8GHz	1.2 or less	
Adapters	Straight type	DC ~ 8GHz	1.2 or less		
	For HRM	DC ~ 8GHz	1.2 or less		
	Terminations	Straight type	DC ~ 8GHz	1.2 or less	
Mechanical Properties	Coupling force (withdrawing force)	1 ~ 5kg			
	Coupling torque	100g-cm or more			
	Center contact holding force	50g or more with steel pin gauges of $\phi 0.49^{+0}_{-0.005}$			
	Service life	500 times			
Environmental Properties	Vibration resistance	There must be no abnormalities when tested by the method of JIS C5025, testing method I, Type B.			
	Impact resistance	There must be no abnormalities when tested by the method of JIS C5026, test conditions A.			
	Humidity resistance	There must be no abnormalities when tested by the method of JIS C5024, testing method I.			
	Corrosion resistance	There must be no abnormalities when tested by the method of JIS C5028.			

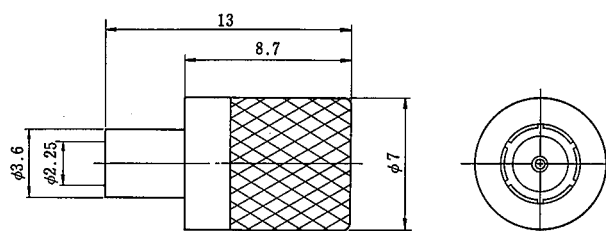
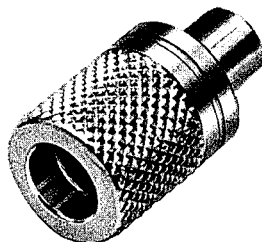
POD SERIES RF CO-AXIAL CONNECTORS

Guide to products

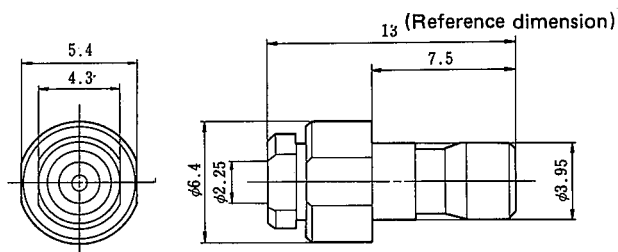
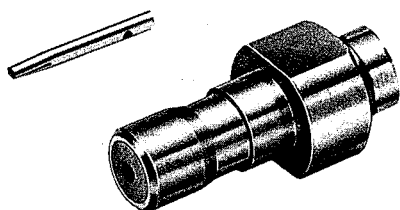
The following are the typical products of the POD series:

Connectors for semi-rigid cables

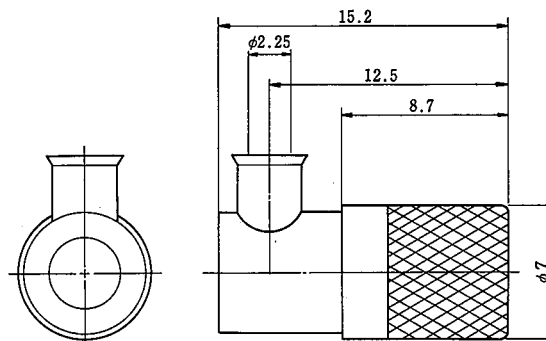
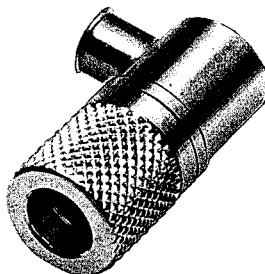
HRS No.	Part No.	Applicable cable
CL327-0001-7	POD-P-85	.085-inch semi-rigid cables



HRS No.	Part No.	Applicable cable
CL327-0002-0	POD-J-85	.085-inch semi-rigid cables



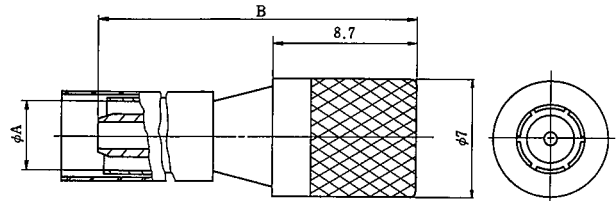
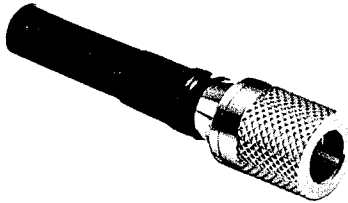
HRS No.	Part No.	Applicable cable
CL327-0003-2	POD-LP-85	.085-inch semi-rigid cables



POD SERIES RF CO-AXIAL CONNECTORS

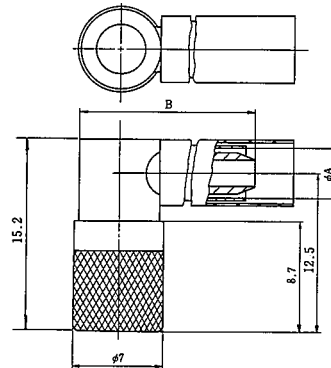
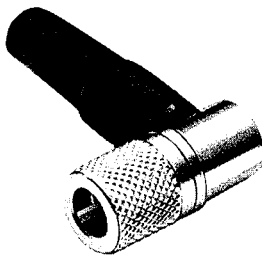
Connectors for flexible cables

HRS No.	Part No.	Applicable cable
CL327-0021-4	POD-P-1.5DV	1.5D-2V
CL327-0022-7	POD-P-1.5DW	1.5D-2W
CL327-0023-0	POD-P-2.5DV	2.5D-2V



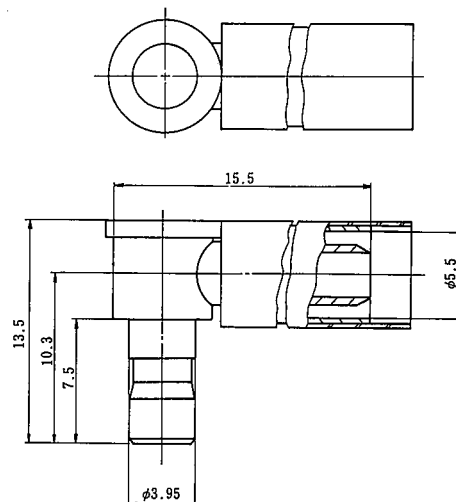
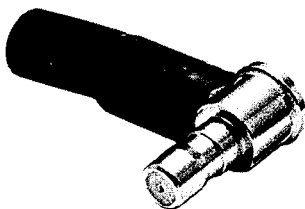
Part No.	ϕA	B
POD-P-1.5DV	2.5	17.8
POD-P-1.5DW	4.1	17.8
POD-P-2.5DV	5.5	19.8

HRS No.	Part No.	Applicable cable
CL327-0031-8	POD-LP-1.5DV	1.5D-2V
CL327-0033-3	POD-LP-2.5DV	2.5D-2V



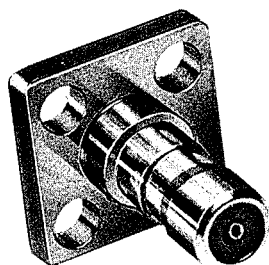
Part No.	ϕA	B
POD-LP-1.5DV	3.8	13.7
POD-LP-2.5DV	5.5	13.9

HRS No.	Part No.	Applicable cable
CL327-0037-4	POD-LJ-2.5V	2.5D-2V



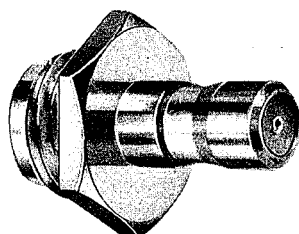
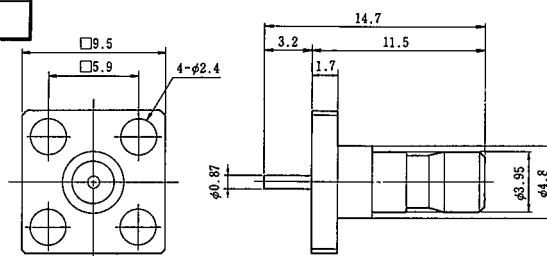
POD SERIES RF CO-AXIAL CONNECTORS

Receptacles



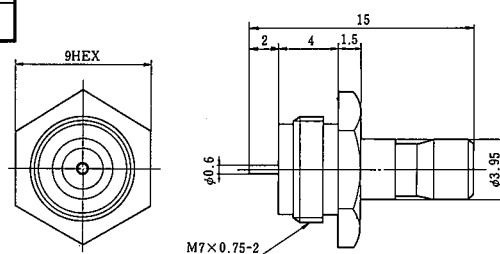
HRS No.	Part No.
CL327-0041-1	POD-R-1

Fastened with machine screws at four places
Round-bar terminals

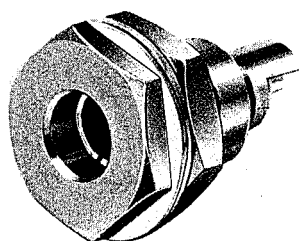


HRS No.	Part No.
CL327-0051-5	POD-R-101

Embedded type
Round-bar terminals

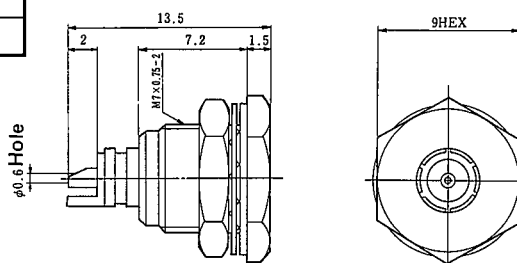


Plug receptacle



HRS No.	Part No.
CL327-0061-9(01)	POD-RP(01)

Embedded type
Solder pot

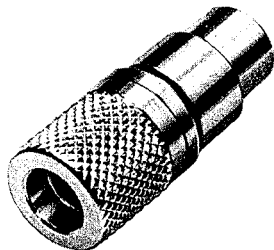


POD SERIES RF CO-AXIAL CONNECTORS

Converter adapter

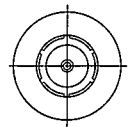
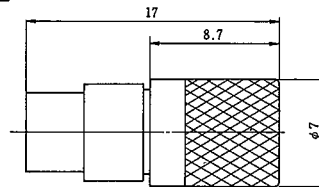
For converter adapters for connecting the POD series to other series, see the CL311 BWA series.

Accessories



HRS No.	Part No.
CL327-0091-0	POD-TMP-025

Male coupling part terminations

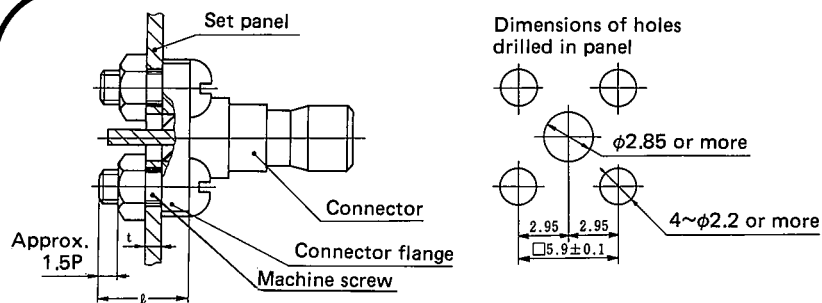


POD SERIES RF CO-AXIAL CONNECTORS

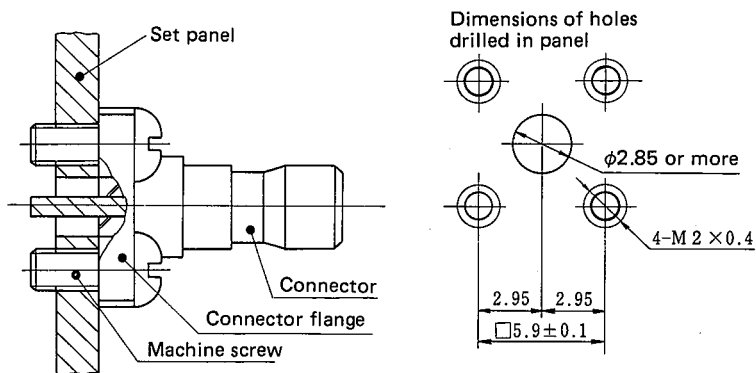
Technical Guidance

(1) Type fastened with four holes

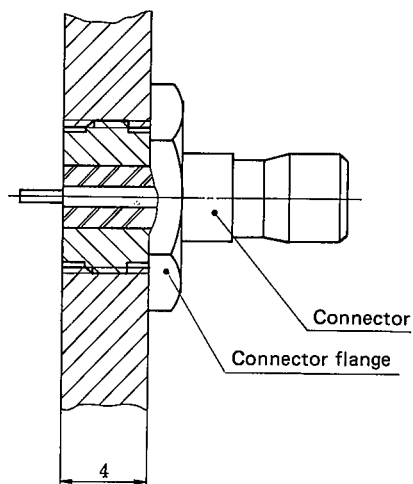
(2) Embedded type



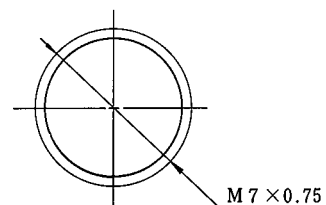
Part name	Type	Length (ℓ)
Machine screw	M2x0.4 Pan-headed small or round small screws	t + 3.9 mm or more
Nut	M2 x 0.4	



Part name	Type	Length (ℓ)
Machine screw	M2x0.4 Pan-headed small or round small screws	Depends on set design

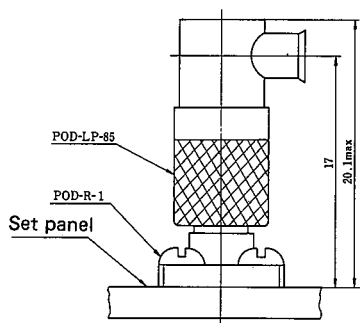


Dimension of hole drilled in panel

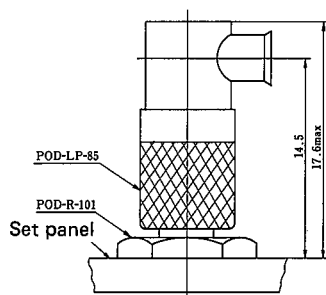


Space factors in connector mounting

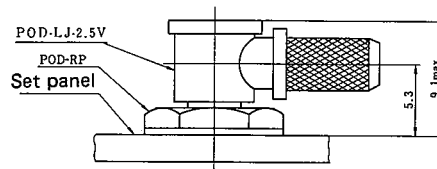
(3) The following space factors are needed when the connectors are mounted with various combinations:



HRS No.	Part No.
CL327-0003-2	POD-LP-85
CL327-0041-1	POD-R-1



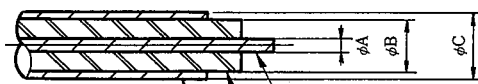
HRS No.	Part No.
CL327-0003-2	POD-LP-85
CL327-0051-5	POD-R-101



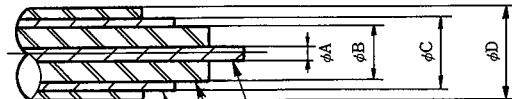
HRS No.	Part No.
CL327-0061-9	POD-RP
CL327-0037-4	POD-LJ-2.5V

Standard cables

The following are the dimensions, structures and materials of the standard cables for the POD series:



Center conductor (silver-plated copper-covered steel wire)
Dielectric material (fluororesin)
Outer conductor (copper tube)



Center conductor (copper wire)
Dielectric material (polyethylene or irradiated polyethylene)
Outer conductor (copper wire)
Polyvinyl chloride

Unit: mm

Cable name	ϕA (Outer diameter)	ϕB (Outer diameter)	ϕC
.085-inch semi-rigid cables	0.511	1.671 ± 0.025	2.197 ± 0.025

Cable name	ϕA (Outer diameter)	ϕB (Outer diameter)	ϕC (Outer diameter)	ϕD
1.5D-2V	(7/0.18) 0.54	1.6	2.1	2.9 ± 0.4
1.5D-2W	0.54	1.64	2.64	3.5 ± 0.2
2.5D-2V	0.8	2.7	3.3	4.3 ± 0.5

Connecting fixtures and tools

Fixtures and tools part no.	Overview of tools
POD-T-1	Supporting tool used when soldering L-type plugs
POD-T-2	Positioning tool used when soldering .085-inch semi-rigid cables
UM.MSS-T-1	Tool for crimp connection of connectors for flexible cables
HRM-T-9	Tool for bending .085-inch semi-rigid cables
PO-P-2-T	Tool for crimp connection of connectors for flexible cables

*1 Perform crimp connections with the hexagonal hole of UM.MSS-T-1 indicated as 1.5.

*2 Perform crimp connections with the hexagonal hole of UM.MSS-T-1 indicated as 2.5.

Part No.	Types of cables	Tools used
POD-P-85 POD-J-85	.085-inch semi-rigid cables	POD-T-2
POD-LP-85	.085-inch semi-rigid cables	POD-T-1
POD-P-1.5DV	1.5D-2V	UM.MSS-T-1 *1
POD-P-1.5DW	1.5D-2W	MSS.UM(1.5)-T
POD-P-2.5DV POD-LJ-2.5V	2.5D-2V	UM.MSS-T-1 *2
POD-LP-1.5DV	1.5D-2V	UM.MSS-T-1 *1 POD-T-1
POD-LP-1.5DW	1.5D-2W	MSS.UM(1.5)-T POD-T-1
POD-LP-2.5DV	2.5D-2V	UM.MSS-T-1 *2 POD-T-1

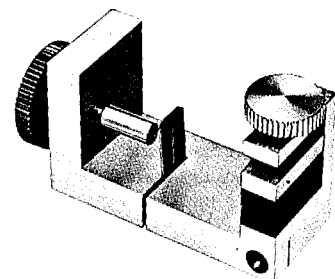
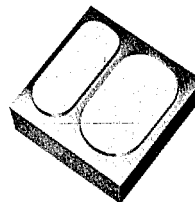
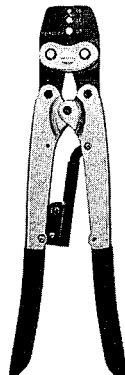
MSS.UM(1.5)-T
Solderless tool

UM.MSS-T-1
Crimp tool

POD-T-1
Supporting tool

HRM-T-9
Cable bending tool

POD-T-2
Soldering tool



Wiring methods

1. POD-P-85

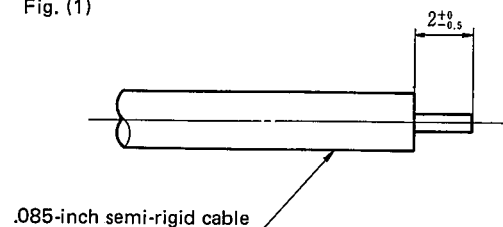
Process 1. Cutting the cable (refer to Fig. (1))

Let the center conductor of the cable protrude $2^{+0}_{-0.5}$ mm, and remove the outer conductor and the insulation.

Note (1). Finish the outer conductor and insulation vertically and uniformly.

Note (2). When cutting, be careful not to damage the center conductor.

Fig. (1)



Process 2. Solder the male contact to the center conductor of the cable (refer to Fig. (2), Fig. (3) and Fig. (4))

Fixtures and tools used: POD-T-2
20W soldering iron

- i) Preliminary soldering of the contact.
 - a) Fasten the contact holder (3) with a vice or the like and fit the male contact to the contact holder as shown in Fig. (2).
 - b) Insert a $\phi 0.5$ string solder into the solder hole of the male contact and perform preliminary soldering.
- ii) Put the positioning plate of the center conductor (2) into the groove of the POD-T-2 proper.
- iii) Mount the cable in Fig. (1) onto POD-T-2, as shown in Fig. (3). Pass the center conductor of the cable through the groove of the positioning plate of the center conductor (2), and screw in the tightening fixture (1) (4) at the position where the tip of the outer conductor of the cable strikes against (2) to fasten the cable.
- iv) At the state shown in Fig. (2), insert the contact holder through the transverse hole of the POD-T-2 proper, and align the center conductor of the cable with the solder hole of the contact.
- v) While heating the contact with the soldering iron, press the contact holder until the surface of the end strikes against the surface of (2).
- vi) After the soldering work is finished, withdraw (2) from the main unit (1), and remove the cable from POD-T-2.
- vii) After soldering, use a razor to finish the build-up uniformly on the circumference.

Note (3). Be careful that extra solder does not flow onto the center conductor of the cable at the part 0.3 ± 0.05 in Fig. (4).

Fig. (2)

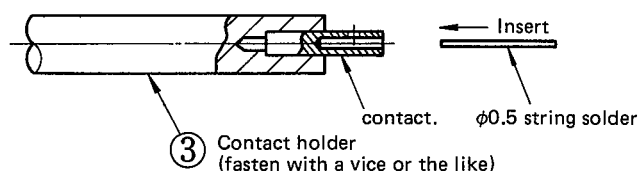
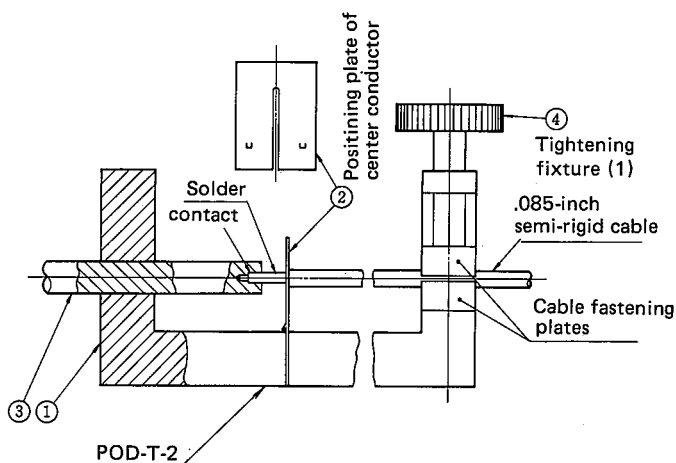


Fig. (3)



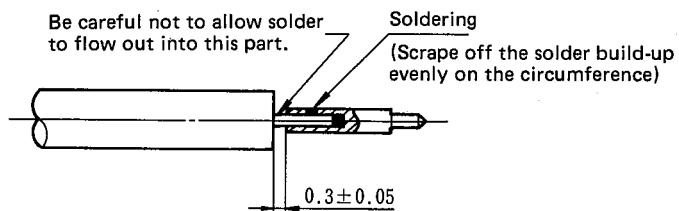
Process 3. Soldering the outer conductor of the cable and the connector proper.

(Refer to Fig. (5).)

Fixtures and tools used: POD-T-2
50W soldering iron

- i) POD-T-2 proper (1) is fastened with a vice in Fig. (5).
- ii) Fit the insulation seat positioning bar (5) into the connector. Insert it into the transverse hole of the main unit (1).

Fig. (4)



POD SERIES RF CO-AXIAL CONNECTORS

iii) Insert the cable in the state shown in Fig. (4) into the connector as shown in Fig. (5). When the end of the cable has struck against the insulator of the connector, screw in the tightening fixture (1) (4) and fasten the cable.

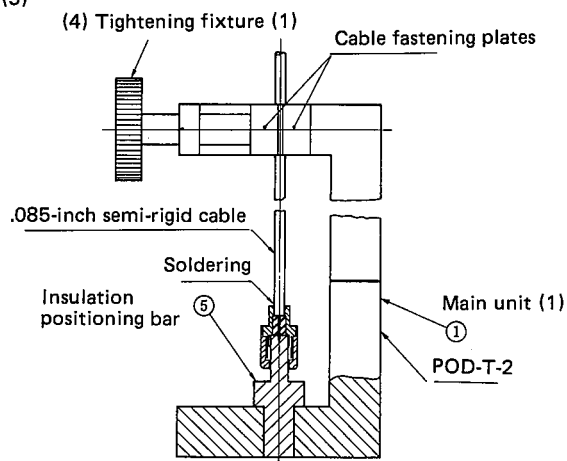
iv) Fasten the connector proper by soldering it to the cable.

Note (4). Apply the solder uniformly on the circumference.

Note (5). Tighten the tightening fixture (1) (4) firmly so that the cable will not move as a result of the thermal stress produced by the soldering.

Note (6). Using sandpaper or the like, polish in advance with the part of the cable where the solder is to be applied so that it will go on easily.

Fig. (5)



2. POD-J-85

Process 1. Fasten the tightening fixture by soldering to the cable. (Refer to Fig. (6).)

Fixtures and tools used: Vice

50W soldering iron
POD-T-2

i) In Fig. (6), fasten the main unit of (1) POD-T-2 in place with the vice.

ii) As is shown in Fig. (6), pass the cable into the tightening fixture. When the cable has been inserted into the hole at the tip of the fastening fixture (2) (6), screw in the tightening fixture (1) (4) and fasten the cable.

iii) Screw in the tightening fixture (2) (6) until the tip of the cable strikes against the end of the hole of the tightening fixture (2).

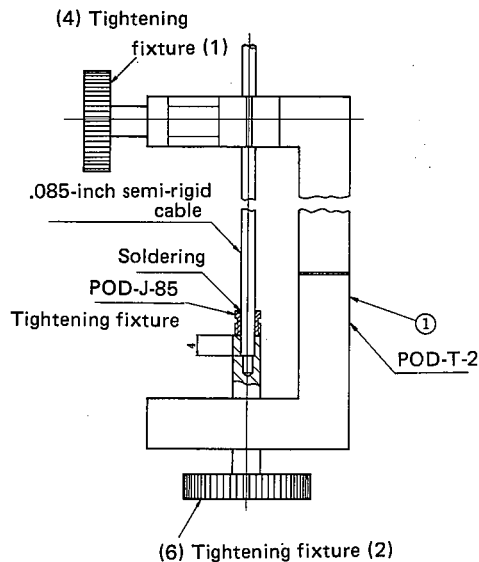
iv) Fasten the shell to the cable by soldering.

Note (1). Tightening fixture (1) (4) must be screwed in tightly so that the cable will not move as a result of thermal stress produced by the soldering.

Note (2). The solder must be applied uniformly on the circumference.

Note (3). Using sandpaper or the like, polish in advance the part of the cable where the solder is to be applied so that it will go on easily.

Fig. (6)



Process 2. Cut off the outer conductor of the cable at the position of the tip of the tightening fixture. (Refer to Fig. (7).)

Fixtures and tools used: Knife

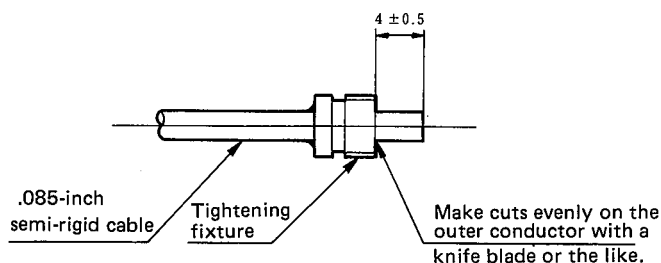
Cutting pliers

i) Using a knife blade or the like, make cuts uniformly on the circumference of the tip of the cable tightening fixture in Fig. (7).

ii) Grasp with cutting pliers, etc. the 4mm part of the cable protruding from the tip of the tightening fixture, bend it back and forth, bend the outer conductor at the cut part, and withdraw the unwanted part of the outer conductor.

Note (4). When cutting the cable, be careful not to damage the tip of the tightening fixture and be sure that the tip of the shell and the cut surface of the cable are on the same surface.

Fig. (7)



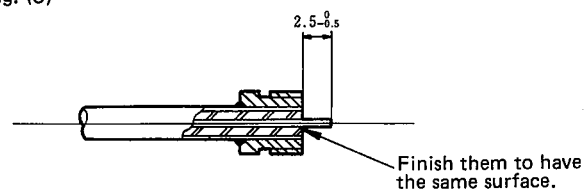
Process 3. Cut the cable insulation vertically at the tip of the tightening fixture and remove it. Cut the center conductor of the cable at $2.5^{+0}_{-0.5}$ mm. (Refer to Fig. (8).)

Fixtures and tools used: Knife

Note (5). Be sure that the end of the outer conductor of the cable and the end of the insulation will coincide.

Note (6). Be careful that the center conductor of the cable is not bent or damaged.

Fig. (8)



Process 4. Solder the end to the center conductor of the cable. (Fig. (9), Fig. (10), Fig. (11).)

Fixtures and tools used: POD-T-2

20W soldering iron

i) Preliminary soldering of connector contact

a) Fasten the contact holder (3) with a vice or the like and fit the female end to the contact holder, as is shown in Fig. (9).

b) Insert a $\phi 0.5$ string solder into the solder hole of the female end, and perform preliminary soldering.

ii) Insert the positioning plate of the center conductor (2) into the groove in the main body of POD-T-2.

iii) Mount the cable in Fig. (8) onto POD-T-2, as is shown in Fig. (10) and pass the center conductor of the cable into the groove of the positioning plate of the center conductor. Screw in the tightening fixture (1) (4) at the position where the tip of the outer conductor of the cable strikes against (2), and fasten the cable.

iv) Insert the contact holder in the state shown in fig. (9) through the transverse hole of the main body of POD-T-2, and align the center conductor of the cable with the solder hole of the contact.

v) While heating the contact with the soldering iron, press the contact holder until the surface of the end strikes against the surface of (2).

vi) After the soldering work is finished, withdraw (2) from the main body of (1), and remove the cable from POD-T-2.

vii) After soldering, use a razor or the like to finish the build-up uniformly on the circumference.

Note (7). Be careful that extra solder does not flow onto the center conductor of the cable at the part 0.3 ± 0.05 in Fig. (11).

Fig. (9)

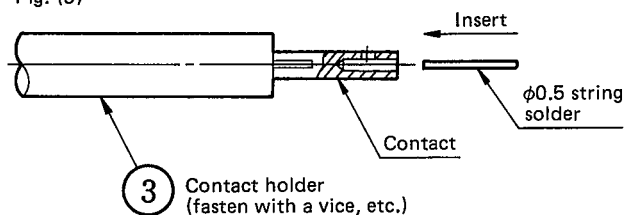


Fig. (10)

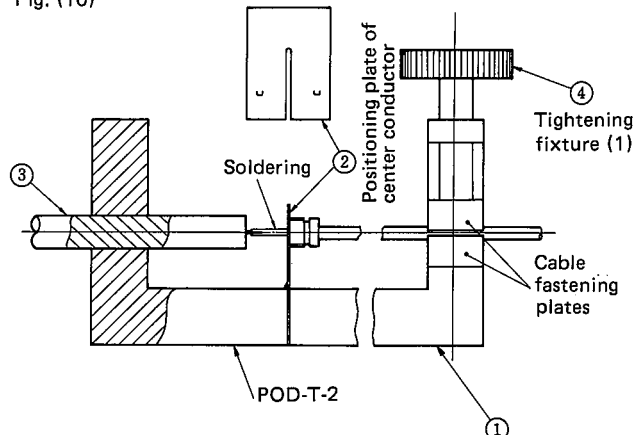
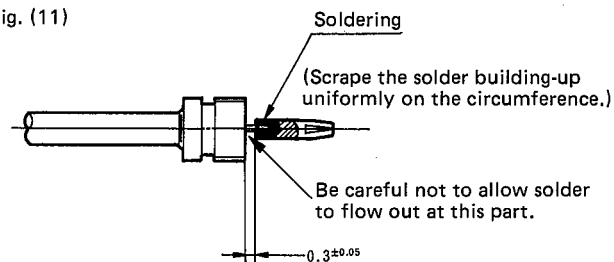


Fig. (11)



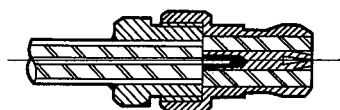
Process 5. Screw the block into the main body of the connector. (Refer to Fig. (12).)

Fixtures and tools used: Spanner

i) When the block in Fig. (11) is screwed into the main body of the connector, the connection of the wiring will be completed, as in Fig. (12).

Note (7). The screw must be tightened with a torque of 20 kg-cm or more.

Fig. (12)



3. POD-LP-85

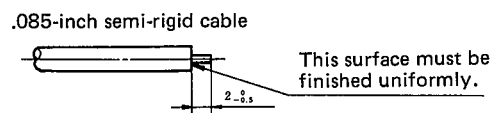
Process 1. Processing the cable end (Refer to Fig. (13).)

- i) Remove the outer conductor and insulation so that the center conductor of the cable will protrude $2^{+0}_{-0.5}$ mm.

Note (1). Finish the outer conductor and the insulation vertically and uniformly.

Note (2). When cutting, be careful not to damage the center conductor.

Fig. (13)



Process 2. Solder the center conductor of the cable to the male contact. (Refer to Fig. (14).)

Fixtures and tools used: POD-T-1

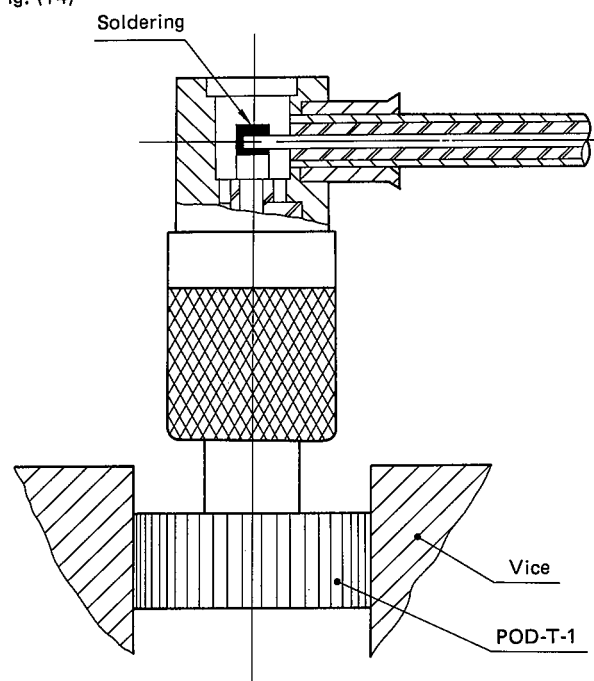
20W soldering iron

- i) Fit the connector to the POD-T-1 after it has been fastened in place with a vice.
- ii) Insert the cable, after its end has been processed, through the cord pipe inlet, as shown in Fig. (13), and solder the center conductor of the cable and the male contact

Note (3). Insert the cable until the tip of the outer conductor of the cable is aligned on the same surface as the inner surface of the connector shell, as shown in Fig. (14).

Note (4). In soldering, be careful not to allow solder to be applied to the outer surface of the male contact of the connector. To check the soldering strength, rotate the cable after soldering.

Fig. (14)



Process 3. Soldering of the outer conductor. (Refer to Fig. (15).)

Fixtures and tools used: POD-T-1

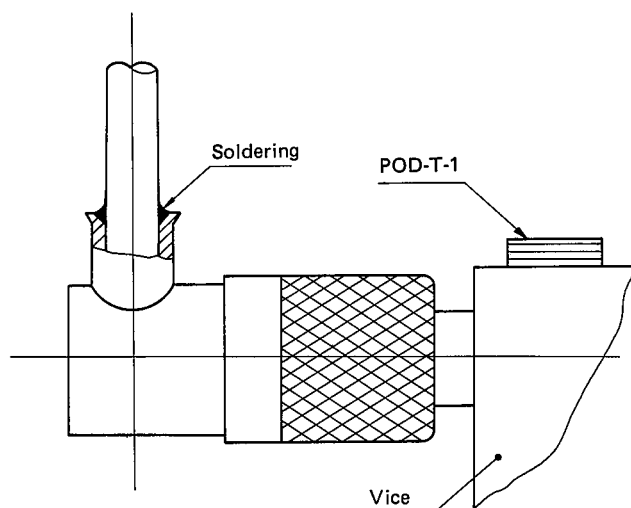
50W soldering iron

- i) Fit the connector to the POD-T-1 which is fastened in place by a vice, as shown in Fig. (15), and solder the outer conductor of the cable and the connector.

Note (5). The solder must be applied uniformly on the circumference, and soldering must be performed as speedily as possible.

Note (6). Polish the soldered part of the cable in advance with sandpaper or the like so that the solder will adhere easily to it.

Fig. (15)



Process 4. When the cover attached to the main unit of the connector is pressure-fitted, the connection of the wiring is finished, as shown in Fig. (17). (Refer to Fig. (16).)

Fixtures and tools used: Pressure-fitting bar
 $\phi 3.3 \pm 0.05$

Fig. (16)

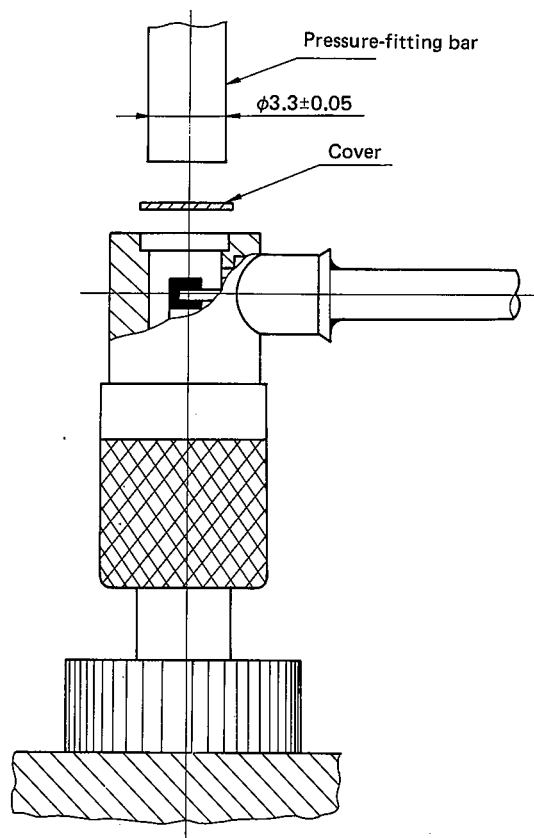
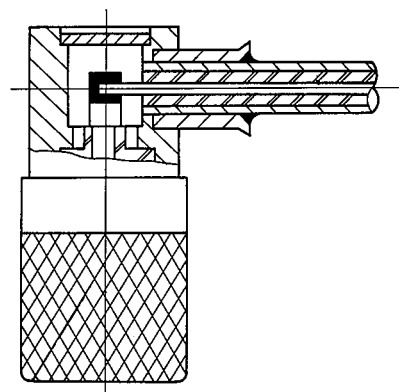


Fig. (17)



4. POD-P-1.5DV, POD-P-1.5DW, POD-P-2.5DV

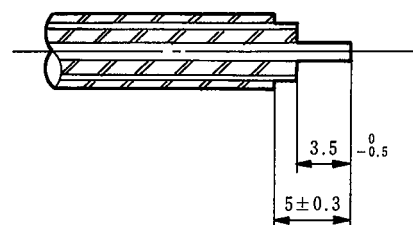
Process 1. Processing the cable end (Refer to Fig. (18).)

- i) Cut off 5mm of the outer covering of the cable. Next, cut off the outer conductor and insulation so that the center conductor will protrude $3.5^{+0}_{-0.5}$ mm.

Note (1). When cutting the outer covering and the insulation, be careful not to damage the outer conductor and the center conductor.

Note (2). The cable insulation must be cut vertically and uniformly.

Fig. (18)



Process 2. Soldering the center conductor. (Refer to Fig. (19).)

Fixtures and tools used: 20W soldering iron

- i) Insert the center conductor of the cable into the supplied Teflon washer, as shown in Fig. (19).

- ii) Fasten the male contact in place with a vice or the like and solder it to the center conductor of the cable.

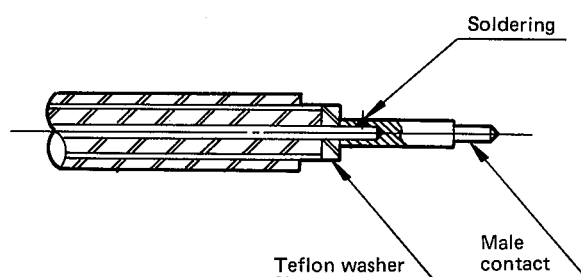
Note (3). Perform preliminary soldering of the male contact, using a $\phi 0.5$ string solder.

Note (4). Perform the soldering speedily so that the tip of the cable insulation will not be dissolved by the heat.

Note (5). Finish the solder build-up after soldering uniformly with a razor or the like. To confirm that soldering has been carried out accurately, pull the male contact with a force of about 1 kg.

Note (6). After soldering, be careful not to allow a gap to be produced between the insulation and the contact.

Fig. (19)



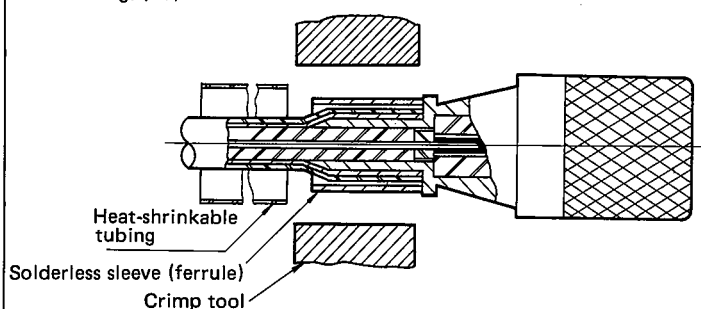
Process 3. After the heat-shrinkable tubing and ferrule (sleeve) have been passed onto the cable, insert the cable through the connector shell cord inlet, and crimp the ferrule (sleeve) with the specified tool. (Refer to Fig. (20).)

Fixtures and tools used: UM.MSS-T-1
MSS.UM(1.5)-T

Note (7). The tip of the outer conductor of the cable must be spread out in order to facilitate insertion.

Note (8). Cable insertion is finished when the cable insulation strikes against the connector insulation.

Fig. (20)



Applicable cable	Fixtures and tools used
1.5D-2V	UM.MSS-T-1*1
1.5D-2W	MSS.UM(1.5)-T
2.5D-2V	UM.MSS-T-1*2

*1 Perform crimp connection with the hexagonal hole marked 1.5.

*2 Perform crimp connection with the hexagonal hole marked 2.5.

POD SERIES RF CO-AXIAL CONNECTORS

Process 4. Lay the heat-shrinkable tubing over the ferrule (sleeve) and shrink it by applying heat with a hair dryer or the like.

The state of the wiring when connection is completed is as shown in Fig. (21).

Note (10). When shrinking, the heat-shrinkable tubing must be caught on the groove of the shell.

Fig. (21)

